

GeoRisk, a Global Earthquake Open Risk Model

*A tool to raise awareness, promote mitigation and insurance use,
and create a worldwide national catastrophe bond market*

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During the past 7 years, earthquakes in Turkey, Iran, Pakistan, Java and Sumatra collectively claimed 420,000 lives. Because of urban population growth, deteriorating construction and hazard ignorance, these tragedies portend a mounting toll of natural catastrophes. In their wake, a new consensus has arisen that we need a worldwide hazard model. We thus propose to form an internationally sanctioned group to produce and maintain an online global earthquake hazards and risk tool. The tool would increase hazard awareness, permit risk assessment in policy-making, and enable governments of developing nations to issue catastrophe bonds to provide their countries with some disaster relief. These bonds could be packaged into mutual funds as a diversified investment uncorrelated with financial markets. The open risk model could also stimulate the catastrophe bond market for developed countries, for which reinsurance reserves are low. The risk model would complement the U.S. Geological Survey's Prompt Assessment of Global Earthquakes for Response (PAGER), alerts issued whenever a large earthquake strikes around the globe. The quake size and location, as well as the projected distribution of damage and number of fatalities, are announced beginning 20 minutes after any large shock, and are updated in the ensuing hours and days as the seismic data stream grows. Both a risk forecast tool and post-event alerts are needed for disaster preparation and response, and both are needed for a successfully functioning catastrophe bond market. The open risk tool will require \$10 million to build and \$2 million per year to operate. We are seeking foundation, World Bank, OECD, insurance industry, and risk modeling company contributions to build it, and a bond expense ratio (essentially a royalty to *GeoRisk*) to sustain and enhance it.